Abstract of the Disclosure

The generation and extensive synthesis ("amplification") of a cDNA sequence of interest is attained through a linked series of multi-cycle primer extension reactions (RT-LLA). The primers used in each of the primer extension reactions of the process contain non-replicable and, in some cases non-replicable and cleavable, elements that halt nucleic acid synthesis and thereby prevent the synthesized molecules from serving as templates in subsequent cycles. Synthesized molecules accumulate during primer extension in a mathematically linear fashion, thereby rendering the process relatively insensitive to contaminating nucleic acids. Multiple primer sets are employed, and simultaneously included in the reaction mixture, thereby ensuring the accumulation of a large number of copies of the cDNA sequence of interest.